

Plan B

Project Description North Point Park¹ Soil Sampling Project

1. Purpose

The purpose of this project is to collect data that will be used to inform the development of the Massachusetts Department of Environmental Protection (MassDEP) regulations and policies on the assessment, cleanup, and reuse of soil containing low levels of pollutants commonly found in land development and redevelopment projects. This data will aid MassDEP's review of current rules and policies, to ensure that lightly contaminated soil can be re-used productively to the maximum extent possible, without posing risks of harm to public health or the environment.

2. Background

MassDEP is responsible for regulating the assessment, cleanup, disposal and/or reuse of contaminated soil, primarily through the Departments' Solid Waste and Waste Site Cleanup Programs. Over the years MassDEP has formulated a series of policies and regulations that both protect public health and the environment while allowing for the cost-efficient reuse and recycling of slightly contaminated material.

Contaminated Soil Management: One MassDEP policy that specifically addresses the re-use of contaminated soil at landfills is "Reuse and Disposal of Contaminated Soils at Massachusetts Landfills" (Comm-97-001, <http://www.mass.gov/dep/bwp/dswm/files/97-001.htm>).

This Policy provides information to the regulated community about the MassDEP's requirements, standards, management practices and approvals for the testing, tracking, transport, and reuse or disposal of contaminated soil at Massachusetts landfills. Under this policy, soil containing elevated levels of contaminants such as lead, mercury, chlorinated solvents and PCBs has been safely re-used as daily cover and grading/shaping (pre-capping) material, thereby sparing landfills the expense of using "clean" material for these purposes and removing contaminated material from the general environment. The policy has been particularly successful in dealing with typical "urban fill" soil. The policy establishes maximum contaminant levels for specific common substances in soil that can be re-used at landfills without a new site-specific approval. Soil containing chemicals that are not on this list may still be re-used, but require a separate site-specific approval process. With a decade of experience implementing this policy, the Department is interested in revising it, including expanding the current list to include additional contaminants.

Asbestos in Soil: MassDEP regulates asbestos under the Massachusetts Clean Air Act and regulations promulgated under that authority (310 CMR 7.00 and 7.15). These rules were intended to deal primarily with abating asbestos during building renovation and demolition work. MassDEP also regulates asbestos under the Massachusetts Contingency Plan (310 CMR 40.0000) (the "MCP") promulgated under the authority granted by General Law Chapter 21E. The MCP primarily addresses notification and remedial requirements when asbestos is released to the environment. Both areas of law can apply when dealing with asbestos that has already been released into the environment and is found in soil.

¹ The project may also include soil from additional locations.

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In the fall of 2004, MassDEP proposed a set of regulations and policies that would coordinate and streamline the various regulations that address the assessment, cleanup and disposal of asbestos found in the environment, such as in urban fill material. MassDEP's goal is to assess and remediate asbestos in soil based on risk and exposure point management principals, consistent with the way the Department addresses other contaminants, such as lead or PCBs. Accordingly, the MassDEP proposal includes provisions that would allow soil containing low levels of asbestos to be left on-site, or (if excavation of soil is required by the project), to be re-used at landfills similar to the re-use of soil contaminated with other substances. The draft proposal is available on-line at <http://www.mass.gov/dep/cleanup/compliance/asbest03.htm>.

DEP held public hearings on this proposal in the 2004, and since the end of the comment period has been working with an external workgroup to revise the proposal in response to comments received. Many of the comments raised questions about the appropriate analytical methods to use for notification and site assessment, methods for making decisions about “how clean is clean enough” based on risk assessments, and the available options for disposal or reuse of contaminated soil.

The Workgroup suggested that, before final regulations are promulgated and implemented, the Department should seek opportunities to gather “real world” data. MassDEP agreed to coordinate and review data from several pilot projects.

Overview of Other Pilot Projects

DCAM Pilots. The Massachusetts Division of Capital Assets Management (“DCAM”) offered to conduct pilot projects on the assessment and remediation of asbestos-contaminated soil at four separate locations within the site of the former Boston State Hospital. A different method of managing soil and building debris containing various levels of asbestos was proposed for each location, to gather data on cost-effectiveness. The operations were carried out in April 2005. DEP is currently reviewing final reports.

Sieve Method Tests. A new sampling and analysis protocol, based on standard sieve methods and asbestos bulk material analyses, has been developed by the Workgroup to determine the need for notification under the Massachusetts Contingency Plan (MCP). Two laboratories have agreed to conduct beta testing of the protocol on anonymous samples of urban fill soil. The first round of samples was sent to the laboratories in September 2005.

3. Proposal for Sampling of Lightly Contaminated Soil from North Point Park and Other Locations

Project Description: North Point Park (NPP), located on the west bank of the Charles River at the Boston-Cambridge line, abuts residential and public use areas. The park is being developed as part of the CA/T Project and includes water features (lagoons, islands) that required excavation of significant amounts of urban fill. The soil has been tested for a wide range of compounds consistent with the protocols established for the CA/T work, including asbestos. Contaminants include substances commonly found in urban environments (e.g., lead and petroleum hydrocarbons) as well as pieces of building materials containing asbestos and unconsolidated asbestos fibers. A stockpile of material with low levels of contamination has been created. Material containing higher levels of contamination (including all identifiable pieces of asbestos-containing material) has been shipped to an off-site disposal facility. This work has been in progress for several years, and has been accompanied by air monitoring for asbestos fibers. To date, the monitoring has not indicated any significant releases of asbestos fibers into the air.

The fate of the soil stockpile is currently unknown. All or some portion of the material may be retained for potential re-use on-site, some (or all) may be re-used at the Marion landfill² as grading and shaping material to facilitate the closure of the landfill, and some (or all) may be brought to an out-of-state facility for disposal.

This pilot project presents a unique opportunity for the Department to collect an extensive data set about asbestos using a variety of sampling techniques, including those that simulate potential air emissions associated with aggressive use of the soil. This data set will provide the basis for evaluating the potential asbestos content of airborne dust, and for correlating results from a variety of analytical methods.

Environmental Sampling and Analysis Plans:

Soil: Representative soil samples will be collected at and near the surface of the 38,000-ton Stockpile of NPP soils using hand tools.

The Department proposes to analyze the soil samples for asbestos by three different methods: the standard US EPA Region I Protocol for asbestos in soil, a sieve method developed by DEP and the Workgroup, and the US EPA Elutriator Method which generates respirable dust within a controlled laboratory environment and measures the amounts of asbestos within the dust.

Air: The Department proposes to simulate dust generation associated with aggressive soil disturbance in a controlled environment at the site. Soil from the stockpile will be removed to an adjacent flat, stable location and temporary containments³ will be erected over the soil. The soil will then be disturbed using mechanical devices (e.g. shovels) and fans or leaf blowers to generate dust. The air will be sampled for respirable dust (particulate matter less

² The re-use of the soil at the Marion landfill may also provide MassDEP with an opportunity to collect air samples during the re-use activities. This aspect of the Pilot Project will be pursued as conditions permit.

³ The containment structures would be similar to those used for the Spectacle Island Asbestos Exposure Assessment (June, 2005) which measured 10'x12'x5' and were constructed of wood framing wrapped in polyethylene sheeting.

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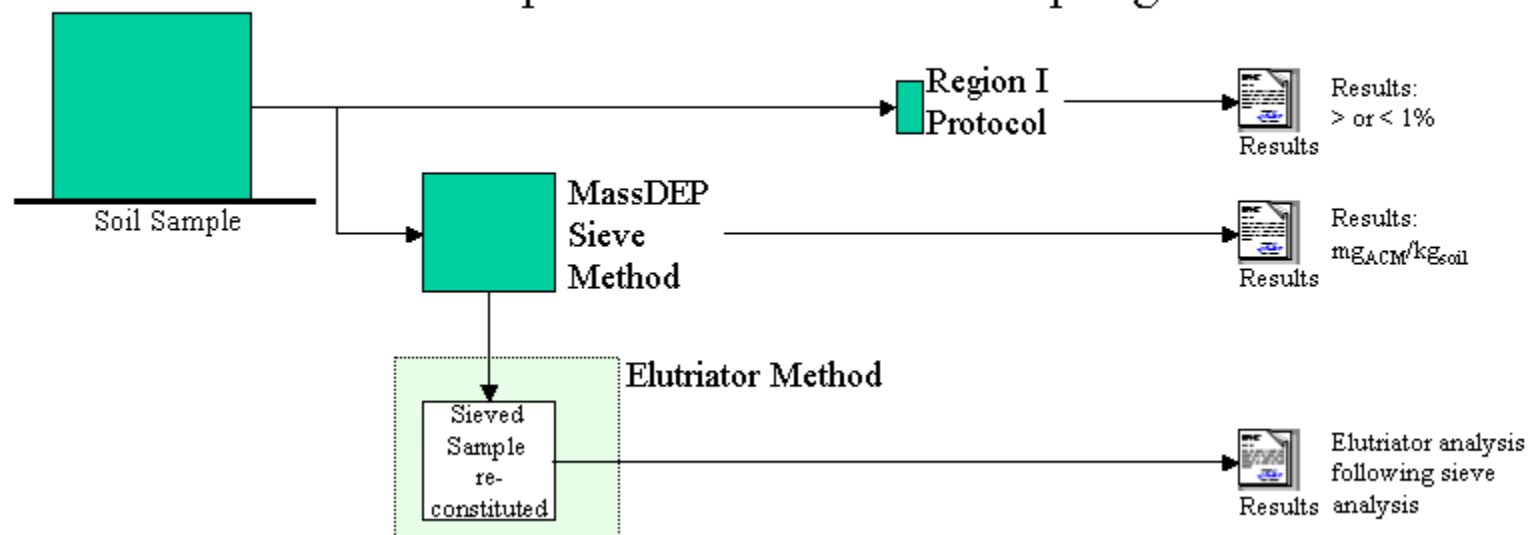
than 10 microns in diameter, or “PM₁₀”) and for asbestos fibers by Phase Contrast Microscopy (“PCM”) and Transmission Electron Microscopy (“TEM”).

Monitoring Results: The soil and air results will be prepared by the contractors conducting the work and relayed electronically to MassDEP for evaluation.

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Medium	Analytical Method	Description	# Samples	Unit Cost	Total Cost
Soil	US EPA Region I Protocol	Standard CA/THT "Asbestos Bulk Soil Analysis Method"			
Soil	MassDEP Sieve Method	Sample sieved and ACM in retained fraction weighed to give $\text{mg}_{\text{ACM}}/\text{kg}_{\text{soil}}$			
Soil	USEPA Elutriator Method	Air flows over sample to and PM_{10} release analyzed using TEM to give asbestos fibers/ mg_{PM10}			
Air	PM_{10}	In containment, measure of dust created			
Air	PCM	Standard asbestos air monitoring of containment air			
Air	TEM	TEM analysis of dust generated in containment			

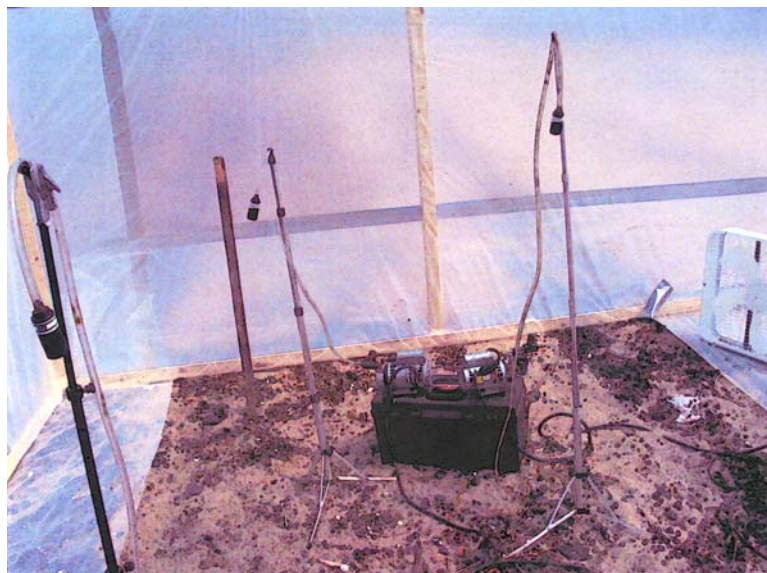
Proposed Asbestos Soil Sampling



Containment Sampling
Example: Spectacle Island



Erecting the containment structure



Sampling equipment inside the containment